



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 18, 2000

Mike Glasson, Environmental Coordinator
West Ridge Resources, Inc.
P.O. Box 902
Price, Utah 84501

Re: Findings for September 18, 2000 Response to Division Order DO00A, Surface Facility
As-Built, West Ridge Resources, Inc., West Ridge Mine, [REDACTED]-DO00A-2,
[REDACTED]

Dear Mr. Glasson:

The above referenced response has been reviewed and there are deficiencies that must be adequately addressed prior to approval. A copy of our analysis and findings is enclosed for your information. Please be aware that when addressing the deficiencies and modifying the plan that this may trigger additional modifications in order to meet the requirements of the regulations. Please respond to these deficiencies by March 1, 2001 or the Division will return your application.

If you have any questions, please feel free to call Pete Hess at (435) 613-5622, or me at (801) 538-5258.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Pamela Grubaugh-Littig'.
Pamela Grubaugh-Littig
Permit Supervisor

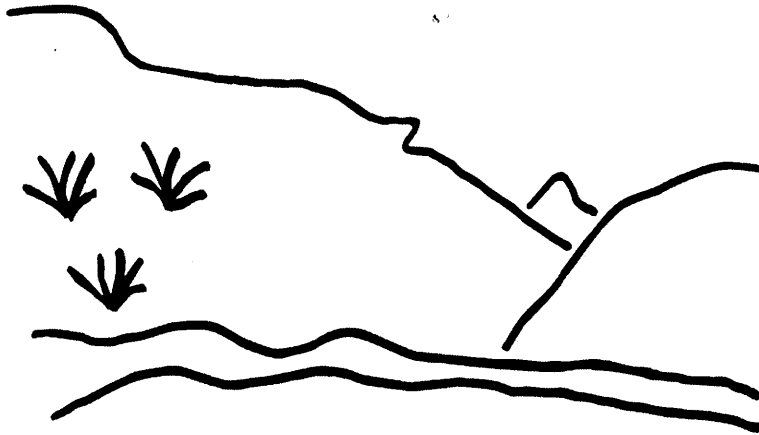
sd/sm

Enclosure:

cc: Price Field Office

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State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

West Ridge Mine
Response to Division Order DO00A
Surface Facility As-Built
C/007/041-DO00A-2
Analysis and Findings
November 30, 2000

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INTRODUCTION

TECHNICAL ANALYSIS

INTRODUCTION

On July 14, 2000, the Division received the response to Division Order DO00A-1, that dealt with as-built drawings and slope stability analyses for the West Ridge mine. Before a deficiency document could be generated for the first submittal, additional material relative to the hydrologic requirements of the R645 coal rules for the site (and contained a substantial amount of revised information as compared to the approved hydrologic information submitted within the permit application package) was received by the Division on September 18, 2000.

In this document, the Division has determined that several deficiencies relative to the as-built maps, the slope stability analysis of the proposed reclamation plan for the highwall area, and the hydrologic requirements for the site exist and must be addressed before Division approval of the "As-Built" for the new mine can be recommended.

SUMMARY OF OUTSTANDING DEFICIENCIES

SUMMARY OF OUTSTANDING DEFICIENCIES

- R645-301-512,** (1) The Mary Jean Mitchell Green memorial flagpole area that lies south of the main conveyor belt drive must be shown. (2) Area 21, which is designated as a "rock dust storage area" needs to be shown as a bulk rock dust storage tank/apparatus. (3) The high voltage cable access way from the electrical substation to the belt portal must be shown. (4) The machinery wash down pad next to UPDES discharge point #2 must be shown. (5) The area depicted as #22 on Map5-5 which is designated as a "diesel fuel storage" area must be labeled as a shed, since the structure is a maintenance shop used to service mine equipment and is on either side of the fuel storage containment. (6) The highwall safety bench above the portals must be labeled on Map 5-6, Map 5-6a, Map5-6b, and Map5-6c. (7) In the upper left-hand fork of "C" Canyon, the area which is above the designated "coal storage pile" (area is 320 feet long by approximately 100 feet wide or 0.73 acres) has already been used as a coal storage area. This area must be designated as a coal storage area to meet the requirements of R645-301-521.164. (8) The diesel fuel storage tank (1,000 gallons) northwest of area 10, Reclaim Tunnel Inlet/Head Wall, must be shown. (9) The electrical building by the belt portal must be labeled. (10) The temporary waste rock storage site designated in the upper right fork between areas 19 and 20 must be relocated. Its present position shows that waste rock will be stored on the slope northeast of the Mine's ventilation fan. 12
- R645-301-526.110 through -526.115,** the permittee needs to provide photographs and construction period dates for each existing "as built" structure which is used in connection with or to facilitate the coal mining operation. 11
- R645-301-542.200,** The permittee must provide a detailed reclamation plan for the cut slope/highwall area. This must include physical properties of the selected backfill material, the construction methods which will be used, special machinery which may be necessary, and documentation that an acceptable long term static safety factor can be achieved for the reclaimed areas. This information is needed to ensure that the slopes can be properly reclaimed, and that an adequate bond is in place to perform that reclamation. 14
- R645-301-553.130,** Permittee must provide information supportive of the fact that the long term static safety factor is achievable for the worst case, highest slope scenario for the reclaimed highwalls and slopes. 14
- R645-301-553.130,** The permittee must provide documentation that the reclaimed cut slope/highwall area will not become saturated after construction, or the permittee must consider and analyze all moisture conditions relative to the stability of the reclaimed cut slope and highwall areas. 14

SUMMARY OF OUTSTANDING DEFICIENCIES

- R645-301-553.130**, The permittee must provide information on the backfill material that will be used to reclaim the cut slope/highwall area. The selected soils must have an angle of repose that is greater than the reclaimed slope angle. The proposed reclaimed slopes have angles as steep as 40°. The angle of repose for many soils is between 35° to 45°. 14
- R645-301-721 and -733**, provide the following, as detailed above. 1) Revise sections of the mining and reclamation plan text that refer to the disturbed area size to reflect the correct acreage number. 2) Submit maps missing from Appendix 7-4, namely: Map 5-8, Map 5-9, and Map 7-4A. Update the revision number of Map 7-4 and submit a new map. 3) Revise the nine drafting changes to Map 7-2 as itemized above. Include all riprap designs. 4) Revise the four drafting changes to Map 7-4, as itemized above. 5) Provide a new Table 17 showing "as-built" crest elevations for both cells of the sediment pond. 6) Redefine the revised disturbed area boundary on the ground to accurately delineate the mine site. 9
- R645-301-721**, Remove the reference to sediment traps on page 54. 15

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HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Based on the first technical analysis which was performed relative to hydrology, the Division expected to receive two maps relative to the "as-built" hydrology requirements of the mine site. Instead, an entirely new Appendix 7-4, West Ridge Mine Sedimentation and Drainage Control Plan was submitted on September 18, 2000 prior to the generation of the first deficiency response. The new Appendix 7-4 included one of the two anticipated maps. The permittee indicated that there were so many changes from what had been approved pre-Mine to what had been constructed that the whole appendix 7-4 had to be redone. This technical memo analysis compares the permit application package approved, Appendix 7-4 to the new, "as-built" version. The new appendix was also reviewed on its own merits. All maps, design calculations, and as-built construction in the new submittal are certified by a professional engineer.

The size of the mine site disturbance is actually smaller than the acreage approved in the permit application package. Also, the configuration of the disturbed area is different. This disturbed area acreage reduction needs to be reflected throughout the text of the mining and reclamation plan.

In order to be consistent with the existing text in the MRP, and especially in Appendix 7-4 itself, all the maps in the original Appendix 7-4 will need to be included in this new version. Maps missing in this new submittal include:

- Map 5-8, Undisturbed Drainage Culvert Profile,
- Map 5-9, Mine Site Reclamation,
- Map 7-4A, Sediment Pond Cross Sections. The new Map 7-4 (received 9/18/2000) is labeled as "Rev 5" which is the same number as the original map in the MRP. There have been numerous, significant changes made to this map. The revision number should be revised to reflect these changes.

Diversions

Comparing the old Map 7-2, Mine Site Drainage Map, to the new, several changes were noted that appear necessary due to the revised configuration of the site. These configuration changes included changing the right fork of the site from five levels to four levels. The road configuration was changed accordingly. Over all, these changes have made little impact to the originally approved drainage plan.

- DC-8 was moved from under the road to the coal storage pile.
- DD-4A and DC-4A were added.

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- DC-5 designation was changed to DC-6 ; DC-5 is now at a new location across the canyon.
- DD-8 goes around the base of the “nose” instead of above the lower road.
- UC-DD and UC-FF have different alignments. These culverts direct undisturbed drainage flows from the channel outside the site to the main culvert under the site. The three main culverts under the site follow the originally approved alignment. This is important to reclamation and was essential to retain.
- DD-11 goes directly to upper Cell A of the Sediment Pond instead of to DC-12 and into the lower Cell B.
- DD-8A was added between two roads.
- Snow storage sites were reduced from 18 to 15, but the overall site is smaller too.
- UD-15, which drains the County road, remains the same. The County road segment also remained the same near the site.
- The roads to the “nose” and to the portals are less steep, but are longer.

Several discrepancies were noted on Map 7-2, Mine Site Drainage Map. These drafting errors will need to be corrected.

- DD-13, in blue, is OK, but DD-13, in pink, located near culvert DC-13 needs to be changed.
- There are two culverts, in different locations, labeled DC-10.
- There is no riprap shown below culverts DC-10 (both), DC-8, DC-8A, DC-4A, and DC-5. Most of them appear to flow down long unprotected slopes. Properly designed riprap needs to be provided. Riprap designs need to be included in the Appendix.
- There is no riprap shown below culverts DC-9, DC-12, and DC-13. There is no riprap shown below the spillway between the two sediment pond cells. Riprap was shown before and is definitely needed. Riprap designs need to be included in the Appendix.
- The upper and lower cells, Cell A and Cell B, are not labeled. The “Sediment Pond” is not labeled. They were labeled before and need to be labeled to match the MRP text.
- UPDES #1 is not labeled as it was before and the Emergency Spillway is not labeled.
- The disturbed area boundary has changed significantly. This was to accommodate the larger highwall and revised road locations. The new boundary location will have to be staked in the field to delineate the new boundary.
- Page 11 of the text indicates ASCA-X, the test plot, is labeled on Map 7-2. Although the Test Plot is labeled, it is NOT designated as ASCA-X, and needs to be so designated.
- No elevations are given for any contour lines. These were provided on the approved maps and need to be provided on the new edition. An indication of contour intervals would be helpful.

All disturbed area ditches and culverts have been designed to effectively control a 10-year, 24-hour event. This exceeds the 10-year, 6-hour regulatory design, but is consistent with the 10-year, 24-hour design of the sediment pond and the ASCA areas. The design storm is an SCS Type II, and utilizes

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runoff curve numbers determined with Division input. Most of the calculated runoffs remained the same.

All ditch designs have a minimum freeboard of 0.5 feet, which is at least 20% of the flow depth. This is good design practice. Ditches having flows greater than 5 feet per second are concrete lined. The number of undisturbed drainage ditches was reduced from seven to two.

With one exception, the bypass culvert sizes remained the same. Culvert UC-HH was reduced from 3 feet to 2 feet. The design calculations appear appropriate and there is 10 feet of headwater available at the inlet, should that be needed.

The table below compares originally approved culvert design flow with "as-built" design flows. The design flow changes are minute.

Bypass Culvert	Old Design Flow (CFS)	New Design Flow (CFS)
UC-AA	45.5	45.5
UC-HH	28	25
UC-JJ	2.14	2.16
UC-DD	0.91	0.91
UC-MM	0.50	0.52
UC-FF	0.95	0.95

The three lengths of the undisturbed bypass culvert which form the "Y" of the main channels were reduced in overall length by 677.7 feet (from 5007.2 feet to 4329.2 feet).

All undisturbed area culverts are equipped with ramped trash-racks to reduce the potential for culvert plugging. The trash-racks are constructed with 3/4 inch bar, on six inch centers. Rack approach angles may need adjustment as determined through experience at the site. Riprap has been placed six inches above the elevation head required for each culvert's design flow. Although not a regulatory requirement, this is a good design practice that will enhance performance and reduce maintenance. Culverts diverting undisturbed areas have all been designed using a 100-year, 6-hour storm which exceeds regulatory requirements.

The parking lot/office pad area which lies SW of the dual cell sediment was originally permitted as an alternate sediment control area (designated as ASCA-Z in the permit application package). Through proper permitting action (C/007/041-AM00E), the area was re-permitted as a sediment trap. Same has the ability to discharge to the undisturbed bypass culvert (discharge inlet is about 320 feet NW of the undisturbed bypass outlet). As of the date of this document, the permittee has not performed the field changes necessary to incorporate the approved design, therefore inclusion of an "as-built" is not possible at this time. However, it is recommended that the permittee include with the next submittal the following:

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- The permittee needs to update all necessary maps and the MRP text by removing any reference to ASCA "Z". A new designation should be given to the area.
- All of the design calculations which were submitted and approved within AM00E should be resubmitted with the permittee's response to this document, such that a "complete" hydrologic appendix will exist upon approval.
- If, upon the field implementation of the AM00E design, field changes were necessary, those changes must be documented with revised drawings and/or text to complete the "As Built" requirements for this mine site.

Sedimentation ponds

Map 7-4, Sediment Pond Plan and Profile, show changes which were necessary due to the re-configuration of the site. These changes appear to have had little hydrologic impact, compared to the approved or preconstruction plan.

- DD-11 flows to DC-13 and into upper Cell A, instead of into DC-12 and lower Cell B.
- The twin cell sediment pond was constructed as designed in the approved pre-construction design.

Some discrepancies were noted on Map 7-4, Sediment Pond Plan and Profile. These drafting errors need to be corrected.

- DD-9, which feeds DC-9 is not labeled.
- DD-13, which feeds DC-13 is not labeled.
- DD-13, in pink, should be labeled DC-13.
- According to the legend, the main bypass culvert is symbolized by a pair of parallel dashed red lines. The bottom dashed line is missing on the Profile. Similarly, in the Plan View, the two dashed red lines are of different weight or thickness.

The disturbed area flows reporting to the pond are controlled by ditches meeting the 10-year, 24-hour storm design. Approved flow volumes reporting to the pond did not change with the as-built plan. The sum of the runoff from the disturbed area, undisturbed area, direct precipitation, and 3-years of sediment is 7.051 acre-feet. The combined capacity of the dual cell pond is 8.170 acre-feet.

The open channel spillway connecting the upper and lower cells was designed to meet a 25-year, 6-hour storm. There is only about one foot of freeboard at that flow. The principal and emergency spillways are designed to independently pass the required 25-year, 6-hour design event. This conservative design will effectively pass the design storm even if either spillway were plugged.

All culverts leading to both cells of the sediment pond were checked for capacity and appear to be adequate. In addition, the flows into and through the pond cells showed the following:

- Total inflow into the upper cell, Cell A, is 27.52 cfs. Total flow into the lower cell, Cell B, is 13.51 cfs. This means slightly more than two times the flow enters the upper cell and can flow out the Open-Channel Spillway. The upper cell has a

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4.667 acre-feet volume while the lower cell has a 3.482 acre-feet volume. It's preferable that the greater volume flows to the larger (upper) cell.

- The open channel spillway can pass the flows from the upper cell to the lower cell. That spillway can accommodate the 27.52 cfs with about 1 foot of freeboard.
- The total inflow to the lower cell is 41.03 cfs (27.52 cfs + 13.51 cfs). The principal and emergency spillways in the lower cell can function independently of one another and safely pass 48 cfs. There is no restriction to flow through the multi-cell sediment pond and its associated inlet culverts, open spillway, and dual spillways.

Review of the new Table 17 and the approved Table 17, Sediment Pond Stage-Volume Data, showed some differences. The approved table shows the crest elevations for both cells (A & B). There are no corresponding As-Built elevations. The new Table 17 needs to include the crest elevations for the "as-built" condition of both ponds. This is necessary to have complete information in the plan relative to the available freeboard in the ponds.

Due to the unanticipated extent of coal burn in the highwall/portal area, it was necessary for the permittee to construct a more extensive coal seam access than approved within the original plan. Hydrologically, there are no changes in this area. The approved highwall design should have been about 40 feet high. The constructed highwall is approximately 90 feet high. A safety bench was constructed to catch falling debris and protect the entries at the base. This safety bench was not in the original submittal. The watershed area remains essentially the same, with no additional runoff resulting.

Discharge structures

The riprap at the outlet of the undisturbed bypass culvert is appropriately designed, as approved in the original submittal. A filter bed has been incorporated below the riprap. The water exit velocity at the discharge end is 5 feet per second. The natural stream velocity is 10 feet per second. Thus, stream channel scouring should be minimal.

Findings:

In its present form the submittal does not meet minimum regulatory requirements. Accordingly, the permittee must address those deficiencies as found within this technical memo and provide the following in accordance with the requirements of:

R645-301-721 and -733, provide the following, as detailed above. 1) Revise sections of the mining and reclamation plan text that refer to the disturbed area size to reflect the correct acreage number. 2) Submit maps missing from Appendix 7-4, namely: Map 5-8, Map 5-9, and Map 7-4A. Update the revision number of Map 7-4 and submit a new map. 3) Revise the nine drafting changes to Map 7-2 as itemized above. Include all riprap designs. 4) Revise the four drafting changes to Map 7-4, as itemized above. 5) Provide a new Table 17 showing "as-built" crest elevations for both cells of the sediment pond. 6) Redefine the revised disturbed area boundary on the ground to accurately delineate the mine site.

SUPPORT FACILITIES AND UTILITY INSTALLATIONS

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

Analysis:

Regulation R645-310-526.110 requires that a description of each existing structure that is used to facilitate the coal mining operation will be included within the mining and reclamation plan. The description will include:

- 526.111, Location.

This information is provided on Map 5-5, Revision #7, which when approved, will adequately meet this requirement.

- 526.112, Plans or photographs of the structure which describe or show its current condition.

Due to the volumes of drawings which could be provided by the permittee to meet this requirement, it is recommended that photographs of each surface support facility be provided for incorporation into the mining and reclamation plan. This will meet the requirement referenced here.

- 526.113, Appropriate dates on which construction of the existing structure was begun and completed.

The permittee can include this information adjacent to the previously mentioned photographs.

- 526.114, A showing, including relevant monitoring data or other evidence, how the structure meets the requirements of R645-301.

This requirement is relative to the design, construction and maintenance of impoundments and coal mine waste disposal facilities. Monitoring requirements of said facilities are reviewed during inspections mandated by the R645 coal rules and as such, the documentation as to how those structures meet the requirements of the R645 coal rules are not included within a site's mining and reclamation plan.

- 526.115, A compliance plan for each existing structure proposed to be modified or reconstructed.

This requirement is not applicable at this time as the permittee has only recently completed the construction of the coal production/shipping facilities. At this time, there is no intent to modify any of the "as built" facilities.

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Findings:

R645-301-526.110 through -526.115, the permittee needs to provide photographs and construction period dates for each existing "as built" structure which is used in connection with or to facilitate the coal mining operation.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Mining facilities maps

On July 27, 2000, a field check of Map 5-5, Revision #7, which is the "as-built" submittal map for the surface facilities was made. Several deficiencies were found to exist which must be corrected. These are:

- The Mary Jean Mitchell Green memorial flagpole area that lies south of the main conveyor belt drive must be shown.
- Area 21, which is designated as a "rock dust storage area" needs to be shown as a bulk rock dust storage tank/apparatus.
- The high voltage cable access way from the electrical substation to the belt portal must be shown.
- The machinery wash down pad next to UPDES discharge point #2 must be shown.
- The area depicted as #22 on Map5-5 which is designated as a "diesel fuel storage" area must be labeled as a shed, since the structure is a maintenance shop used to service mine equipment and is on either side of the fuel storage containment.
- The highwall safety bench above the portals must be labeled on Map 5-6, Map 5-6a, Map5-6b, and Map5-6c.
- In the upper left-hand fork of "C" Canyon, the area which is above the designated "coal storage pile" (area is 320 feet long by approximately 100 feet wide or 0.73 acres) has already been used as a coal storage area. This area must be designated as a coal storage area to meet the requirements of R645-301-521.164.
- The diesel fuel storage tank (1,000 gallons) northwest of area 10, Reclaim Tunnel Inlet/Head Wall, must be shown.
- The electrical building by the belt portal must be labeled.
- The temporary waste rock storage site designated in the upper right fork between areas 19 and 20 must be relocated. Its present position shows that waste rock will be stored on the slope northeast of the Mine's ventilation fan.

Map 5-5 shows the entire disturbed area boundary. Other maps submitted in the response do not show the complete disturbed area boundary. The Division considers Plate 5-5 to be the disturbed area boundary map and that map is adequate. If the permittee changes the disturbed area boundary, then all relevant maps must be changed to reflect those changes including Plate 5-5.

Findings:

The information in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must correct the maps previously referenced to accurately depict the surface facilities area and other pertinent information referenced by the other maps.

R645-301-512, (1) The Mary Jean Mitchell Green memorial flagpole area that lies south of the main conveyor belt drive must be shown. (2) Area 21, which is designated as a "rock dust storage area" needs to be shown as a bulk rock dust storage tank/apparatus. (3) The high voltage cable access way from the electrical substation to the belt portal must be shown. (4) The machinery wash down pad next to UPDES discharge point #2 must be shown. (5) The area depicted as #22 on Map5-5 which is designated as a "diesel fuel storage" area must be labeled as a shed, since the structure is a maintenance shop used to service mine equipment and is on either side of the fuel storage containment. (6) The highwall safety bench above the portals must be labeled on Map 5-6, Map 5-6a, Map5-6b, and Map5-6c. (7) In the upper left-hand fork of "C" Canyon, the area which is above the designated "coal storage pile" (area is 320 feet long by approximately 100 feet wide or 0.73 acres) has already been used as a coal storage area. This area must be designated as a coal storage area to meet the requirements of R645-301-521.164. (8) The diesel fuel storage tank (1,000 gallons) northwest of area 10, Reclaim Tunnel Inlet/Head Wall, must be shown. (9) The electrical building by the belt portal must be labeled. (10) The temporary waste rock storage site designated in the upper right fork between areas 19 and 20 must be relocated. Its present position shows that waste rock will be stored on the slope northeast of the Mine's ventilation fan.

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BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

The permittee originally proposed to create highwalls that were smaller than those constructed. During construction, the permittee discovered that the coal near the outcrop had been burned much more than was originally anticipated. The permittee could not follow the approved mine plan because of the unanticipated extent of the burned coal and constructed larger highwalls. The permittee also constructed a safety bench to protect employees and machinery in this area from falling debris. The as-builts for the cut slopes/highwalls are shown on Map 5-5, Map 5-6A, Map 5-6B, and Map 5-6C.

The Division reviewed the as-built maps to determine if the reclamation of the site could be achieved as approved in the current mining and reclamation plan. The Division's main concern is whether the cut slopes and highwalls can be reclaimed in accordance with requirements of the Utah Coal Rules. Another concern is whether or not the disturbed area can be reclaimed without interfering with the experimental practice area. The as-built drawings do not adequately address all of the reclamation issues associated with the cut slopes and highwalls. Issues in the submittal which are not felt to have been adequately addressed are as follows:

- The proposed reclamation slopes are as steep as 40°. Utah Coal Rule R645-301-553.130 requires that reclaimed slopes do not exceed the angle of repose. The angle of repose for most soils is between 35° to 45°. The permittee must state what the angle of repose is for the materials that will be used to backfill the cut slopes/highwalls. If the slope angle exceeds the angle of repose for the back filled material, then the permittee must modify the reclamation plan.
- The Division is concerned about the long term slope stability of the reclaimed cut slopes/highwalls. On page 2 of the slope stability analysis dated May 23, 2000 the height of the slope analyzed is 58 feet and has a safety factor of 1.3. On Map 5-6B the cut slope/highwall on Station 24 + 00 has a height of 105 feet. Since slopes become less stable as the height increases, the permittee must calculate the safety factor for the worst case, highest slope scenario.
- The slope stability analysis was done under the assumption that the material in the slopes would be unsaturated during and after construction. The only reason given as to why the engineer that performed the slope stability analysis assumed the unsaturated condition is that he had a discussion with Andalex personnel. This is not considered to be adequate justification for such an extreme assumption. The engineer then states that if saturated conditions did exist, then the stability analysis would not be valid. See page 3 of the slope stability analysis.
- The permittee must provide supporting information about why the reclaimed slopes will not become saturated. The Division is concerned that during the snow

RECLAMATION PLAN

melt or a heavy rain fall the soils could become saturated. If the soils can become saturated then the permittee must calculate the slope stability analysis using saturated conditions. The permittee may want to consider developing methods to reduce the amount of moisture which might report to the backfilled area.

- The Division is concerned that the backfill material which will be used to reclaim the cut slopes/highwalls has not been identified in the reclamation plan. The permittee needs to show that the backfill material selected will be chosen from sources with material properties that meet or exceed the properties determined as necessary in the slope stability analysis for the reclamation of the site.
- The permittee must provide a detailed reclamation plan for the cut slope and highwall areas. This must include the construction methods used to backfill a 40° slope, as well as what methods will be used to stabilize the areas.

Findings:

The information in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-553.130, The permittee must provide information on the backfill material that will be used to reclaim the cut slope/highwall area. The selected soils must have an angle of repose that is greater than the reclaimed slope angle. The proposed reclaimed slopes have angles as steep as 40°. The angle of repose for many soils is between 35° to 45°.

R645-301-553.130, Permittee must provide information supportive of the fact that the long term static safety factor is achievable for the worst case, highest slope scenario for the reclaimed highwalls and slopes.

R645-301-553.130, The permittee must provide documentation that the reclaimed cut slope/highwall area will not become saturated after construction, or the permittee must consider and analyze all moisture conditions relative to the stability of the reclaimed cut slope and highwall areas.

R645-301-542.200, The permittee must provide a detailed reclamation plan for the cut slope/highwall area. This must include physical properties of the selected backfill material, the construction methods which will be used, special machinery which may be necessary, and documentation that an acceptable long term static safety factor can be achieved for the reclaimed areas. This information is needed to ensure that the slopes can be properly reclaimed, and that an adequate bond is in place to perform that reclamation.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

The permittee's response to the Division Order did not include a Map 5-9, Mine Site Reclamation. This map must be revised accordingly to reflect how the as-constructed highwall will be reclaimed in order to determine if that reclamation plan will have an effect on the hydrology in the area. In the permit application package, which became the approved plan, the permittee discussed an option which enumerated that the size of the proposed disturbance may be reduced during the construction period.(i.e., a reduction in disturbed area acreage). As indicated previously, the reduction in disturbed acreage needs to be quantified relative to its affect on the reclamation hydrology for the site.

Diversions

Figure 12, Restored Channel Typical Sections, shows that the reclaimed main channel and the side channels will be reclaimed to their original configuration. Flow depth, flow velocity, and freeboard were checked with acceptable results. Reclaimed channels RC-GG and RC-KK have slightly reduced flow velocities. These reductions are probably the result of the reduced mine site area. All designs were based on the required 100-year, 6-hour storm.

The hydrologic aspects of the reclamation plan which were approved in the permit application package as compared to the information provided within the revised Appendix 7-4 are unchanged.

On page 54, paragraph 4.3 there is the following sentence. "Sediment traps will be dug into the main channel bottoms as previously described." This concept was discussed early in the site design, but was eventually decided against. This sentence needs to be removed from the text.

Findings:

In its present form the submittal does not meet minimum regulatory requirements. The permittee must address the deficiencies found within this technical memo analysis and provide the following, prior to approval, in accordance with the requirements of:

R645-301-721, Remove the reference to sediment traps on page 54.

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